REMARKS

Claims 1-10 are pending. By this Response, claims 1 and 8-10 are amended. Reconsideration and allowance based on the above amendments and following remarks are respectfully requested.

The Office Action objects to claim 8 due to a minor informality. Specifically, the Office Action asserts that it is not clear to what surface "on the rear surface" recited in claim 8 is directed towards. In response, claim 8 has been amended to clarify this feature of the claim. Accordingly, withdrawal of the objection is respectfully requested.

The Office Action rejects claims 1-3 under 35 U.S.C. §103(a) as being unpatentable over Malinovich, et al. (U.S. Patent No. 6,168,965) in view of Lukianowicz, et al. ("Optical System for Measurement of Surface Form and Roughness" Measurement Science Review, Vol. 1, No. 1, (2001) pp. 151-154); claims 4, 5 and 8 under 35 U.S.C. §103(a) as being unpatentable over Malinovich, Lukianowicz, and Wheatley, et al. (U.S. Patent No. 5,122,905); claim 6 under 35 U.S.C. 103(a) as being unpatentable over Malinovich, Lukianowicz, in view of Oxman, et al. (U.S. Patent No. 6,395,124) and claim 7 under 35 U.S.C. §103(a) as being unpatentable over of Malinovich, Lukianowicz in view of Tamaki (U.S. Patent No. 5,523,174). These rejections are respectfully traversed.

Claim 1

In regard to independent claim 1, applicant respectfully submit that the combination Malinovich and Lukianowicz fail to teach the claimed features. Specifically, Malinovich teaches a method for producing a back illuminated CMOS image sensor in which the sensor is mounted on a substrate and then made thin by an erosion process so that pixels fabricated on the substrate obtain an effective exposure by light. The Office Action asserts that the erosion process for thinning the substrate disclosed at column 4, lines 61-67 and column 6, lines 58-67, create areas over the image sensors that are rough surfaces which diffuse light. Applicant respectfully submits that Malinovich's erosion process, to the contrary of the Office Action assertions, thins the substrate to make the substrate transparent to light and not to create rough surfaces. See column 4, lines 64-67 and column 6, lines 44-48.

Further, Lukianowicz teaches the use of an automatic system for controlling the surface roughness in finishing operations. Lukianowicz system measures the roughness of the surface of a product to determine if the roughness matches with set standards. Lukianowicz does not teach or suggest roughing the surface of a substrate.

Applicant respectfully submits that neither Malinovich nor Lukianowicz teach or suggest a light shading means for shading an incoming light reflected from a rear surface of the semiconductor substrate to said photoelectric

converting portion, wherein said light shading means is formed at an area corresponding to at least the photoelectric converting portion, said area being on the side of the rear surface of the semiconductor substrate, as recited in claim 1.

Further, one of ordinary skill would not look to combine the teaches of Malinovich and Lukianowicz. In order to establish a rejection under 35 U.S.C. §103, three (3) criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

As indicated above, Malinovich and Lukianowicz fail to teach or suggest all the claim limitations. Further, no motivation is provided within the references or by one of ordinary skill to combine the teachings of Malinovich and Lukianowicz. Malinovich teaches making a substrate transparent, not providing a shading means. Also, Lukianowicz discloses measuring surface roughness and not utilizing shading areas to protect photoelectric converting portions from rear surface reflected light. One of ordinary skill would not include shading means within the Lukianowicz system since Malinovich teaches creating a transparent substrate. Further, one would not look to a

measurement system to find such shading means. Thus, even if the combination was possible, it would not result in the claimed features recited in claim 1.

Further, Wheatley, Oxman, and Tamaki fail to make up for the deficiencies of Malinovich and Lukianowicz. Accordingly, reconsideration and withdrawal of the rejections are respectfully requested.

Claim 9

The Office Action rejects claim 9 under 35 U.S.C. §103(a) as being unpatentable over Malinovich, et al. This rejection is respectfully traversed.

Applicant notes that the rejection of claim 9 is based upon 35 U.S.C. §103. As the Office Action alleges all features of the claims are taught within the single reference, namely Malinovich, applicant presumes that the rejection was meant to be based under 35 U.S.C. §102. As such, applicant responds to the rejection of claim 9 as if it were rejected under 35 U.S.C. §102.

With that said, applicant respectfully submit that Malinovich fails to teach each and every feature of claim 9. The Office Action asserts that the etching process of Malinovich provides the claim grinding step for forming a rough surface on the rear surface of a semiconductor substrate. Applicant respectfully submits that Malinovich's etching process is used to thin the substrate surface to create a transparent surface. See column 4, lines 60-67.

Malinovich does not "rough the surface of the rear surface of the semiconductor substrate" as claimed. If a rough surface was etched by Malinovich, the surface would not be transparent. Accordingly, Malinovich fails to teach each and every feature as recited in claim 9. Thus, reconsideration and withdrawal of the rejection is respectfully requested.

Claim 10

The Office Action rejects claim 10 under 35 U.S.C. §103(a) as being unpatentable over Malinovich in view of Oxman, et al. This rejection is respectfully traversed.

Applicant respectfully submits that the combination of Malinovich and Oxman do not provide applicant's claimed invention as recited in claim 10. Oxman teaches the use of a photopolymerizable adhesive resin. This resin allows more flexibility in rendering a circuit once the resin is applied since the resin has unique curing methods. Particularly, the ability to use various wavelengths of light and smaller temperatures provide greater flexibility in curing the resin.

However, Oxman does not teach or suggest the resin when cured or not, as being a light shading adhesive, as claimed. Further, Oxman and Malinovich do not teach or suggest using any type of adhesive to suppress light reflected from the rear surface of the semiconductor substrate from reaching the

semiconductor devices, as recited in claim 10. Thus, the combination of Malinovich and Oxman fail to teach the features of claim 10. Accordingly, the reconsideration and withdrawal of the rejection are respectfully requested.

Conclusion

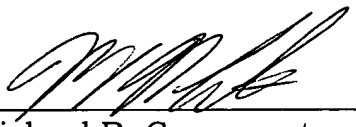
For at least these reasons, it is respectfully submitted that claims 1-10 are distinguishable over the cited references. Favorable consideration and prompt allowance are earnestly solicited.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Chad J. Billings (Reg. No. 48,917) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By 
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Attachment(s)